

CURRENT NOTES

The Newsletter for ATARI Users of D. C. and Northern Virginia

Volume 3, Number 5

May, 1983

Second Anniversary Issue

This issue marks the second anniversary of Current Notes, and of Novatari (the DC group is the junior sibling; its birthday isn't until September). Two years isn't much in the life of a Galapagos tortoise, but in this fast-moving technology that is the subject of our collective interest it's been quite a spell. A couple of reminders of this! Now you can buy an enormous variety of software for your Atari. Two years ago you could barely find any. During the past week two stores in the Washington area have advertised the Atari 400 for under \$100 (net cost to the purchaser after rebate). Two years ago the model number told you the price. All of this was widely predicted, but it's still been a trip watching it happen--a privileged moment in history for those of us lucky enough to be involved in it.

May Is Disk Month

Disk drives that drive disks and the disks that disk drives drive are the theme for the May meetings of Novatari and the DC group. At the Novatari meeting on Sunday May 15th (you Novatari folks did get your flyer telling you the meeting had been postponed from the 8th because of Mother's Day, I hope) a Technical Specialist from the 3M Company will discuss the kind of TLC your disks want, what to look for in acquiring diskettes, and that perennial moral issue of whether to use both sides of a diskette which is sold as one-sided. The 3M people make more disks than Post makes Toasties, so they ought to know what they're talking about. Moreover, anybody from the Scotch tape company should know how to stick to a subject. The 3M people used to make commercials for Mazda rotary engines (you remember, the car that goes "MMM"), but they gave that up. Which is what I'm doing, right now.

Not to be outdone, the DC Group at its meeting on Tuesday, May 17 will hear from Craig Smith on the eminently practical topic of how to do your own simple periodic routine maintenance of your disk drive. The inner wonders of the Atari 810 will be revealed (parental guidance suggested), and you will learn where a squirt of oil will do the most good, and where to apply a ball-peen hammer with maximum force.

See the top of page 2 for meeting times and directions to the meetings.

In This Issue

we have a program from John Chapin that will simultaneously graph three functions in two variables--should be useful to anyone taking functions/analytic geometry, which is what John wrote it for; another installment of Komputer Kollege from the inimitable Prof. Wilhelm Nibbleskipper; your very own personal user number and secret password for the Armudic Bulletin Board System; several good deals in classified ads; and our special feature, five pages of updates to the Atari BASIC Reference Manual, reprinted from the HACE (Houston Atari Computer Enthusiasts) Newsletter. Read and enjoy!

DC GROUP MEETINGS

are held on the third Tuesday of every month in Room 543 of the National Science Foundation offices, 1800 G Street Northwest, Washington. The closest subway stop is Farragut West, on the Blue and Orange Lines. Take the 18th Street exit, and walk south (against the flow of traffic) down 18th Street for 3 blocks to G Street. The building is on the southwest corner of 18th and G; it can be identified by a sign for the Madison National Bank on the corner. Front entrance is in the middle of the block. Parking is available in the building, for a fee. The entrance is on the west side of 18th Street, between F and G. Meetings begin at 5:30 PM, and usually last until 8 or 9.

NOVATARI MEETINGS

are on the second Sunday of the month. Novatari meets in the Greenbriar Community Center, on Stringfellow Road in Chantilly, Virginia. Stringfellow Road, also known as Route 645, runs south from U.S. 50 a little more than two miles west of the Fair Oaks Shopping Mall, which is at the intersection of I-66 and 50. There is a traffic light where Stringfellow Road meets 50. The Greenbriar Community Center is on the left-hand side of Stringfellow Road, 1.4 miles south of 50. There is a small parking lot in front, and a larger one just north of the Center (that is, just before you get to it), which is connected by a walkway. The meeting room is available from 5 to 9 PM. The first couple of hours are normally unstructured, open house style, with people free to come and go and chat with one another as they wish. Organized activities--the monthly program presentation, and any necessary business--begin about 7:00 PM, and usually last about an hour, after which there is some more free time before closing.

CURRENT NOTES is the monthly newsletter sent to members of the ATARI Club of downtown D. C. and Novatari (the Northern Virginia ATARI Users' Group). Both of these organizations are independent groups for computer users, and neither group is affiliated in any way with ATARI, Inc.

The Editor of **CURRENT NOTES** is Paul Chapin, 2159 Golf Course Dr., Reston, Va. 22091, telephone (home) 476-5950, (office) 357-7696. News items, short articles, original programs, classified ads, and any other material of interest to the membership are eagerly solicited.

Membership dues for both groups are \$15.00 a year, which includes subscription to **CURRENT NOTES**. Dues are payable at the beginning of each calendar year. Dues for new members joining during the year are reduced \$1.00 for each month which has passed since the first of the year. Dues may be paid at any meeting, or be sent to the editor. Persons living outside the metropolitan Washington D.C. area may subscribe to **CURRENT NOTES** for \$12.00 per year.

Advertising policy: classified ads are free to members. Commercial advertising rates are \$10.00 for a page, \$5.00 for a half page (no other fraction available). Advertising for any month's issue must reach the editor by the 20th of the preceding month. Advertising must be in the form of xerox-ready copy, on an 8 1/2 x 11 sheet for a full page or an 8 1/2 x 5 1/2 sheet for a half page. Full pages are reduced to 7 x 8 1/2, half pages to 7 x 4 1/4. Copy should be accompanied by full payment. Make check payable to Paul G. Chapin.

```

1 GOTO 100
10 REM GRAPHING PROGRAM
20 REM J. CHAPIN
30 REM
40 XSCAL=2*PI:REM MAXIMUM X VALUE
50 YSCAL=8:REM MAXIMUM Y VALUE
60 HMINT=NULL:REM X-AXIS GRID
65 VMINT=NULL:REM Y-AXIS GRID
70 F1=2*COS(X/2)
80 F2=X
90 F3=F1+F2
99 RETURN
100 GRAPHICS 7+16:RAD :NULL=1000
105 SETCOLOR 0,4,12
106 SETCOLOR 1,8,12
107 SETCOLOR 2,12,12
110 XC=79:YC=47:PI=3.14159:GOSUB 40
115 XSCAL=(79/XSCAL)*PI
116 YSCAL=YC/YSCAL
120 ST=-79/XSCAL*PI
130 FI=-ST
140 INC=FI/79
150 GOSUB 500
160 X=ST
200 FOR SCRX=-79 TO 79
210 GOSUB 70
220 TRAP 230:COLOR 1:PLOT XC+SCRX,YC-F1*YSCAL
230 TRAP 240:COLOR 2:PLOT XC+SCRX,YC-F2*YSCAL
240 TRAP 250:COLOR 3:PLOT XC+SCRX,YC-F3*YSCAL
250 X=X+INC:TRAP 40000
260 NEXT SCRX
270 POKE 764,24
300 Z=PEEK(764)
310 SETCOLOR 0,4,4
320 SETCOLOR 1,8,4
330 SETCOLOR 2,12,4
340 IF Z=31 THEN SETCOLOR 0,4,14
350 IF Z=30 THEN SETCOLOR 1,8,14
360 IF Z=26 THEN SETCOLOR 2,12,14
365 IF Z=12 THEN POKE 764,255:END
370 IF Z<24 THEN 400
380 SETCOLOR 0,4,12
390 SETCOLOR 1,8,12
395 SETCOLOR 2,12,12
400 IF Z=PEEK(764) THEN 400
410 GOTO 300
500 COLOR 1:PLOT 0,YC:DRAWTO 159,YC
510 PLOT XC,0:DRAWTO XC,95
520 FOR X=XC TO 0 STEP -XSCAL*HMINT/PI
530 PLOT X,YC-3:DRAWTO X,YC+3:NEXT X
540 FOR X=XC TO 159 STEP XSCAL*HMINT/PI
550 PLOT X,YC-3:DRAWTO X,YC+3:NEXT X
560 FOR Y=YC TO 0 STEP -YSCAL*VMINT
570 PLOT XC-3,Y:DRAWTO XC+3,Y:NEXT Y
580 FOR Y=YC TO 95 STEP YSCAL*VMINT
590 PLOT XC-3,Y:DRAWTO XC+3,Y:NEXT Y
600 RETURN

```

MULTI-GRAPH

by John Chapin, Novatari

Here's a handy little graphing program that I wrote recently. It can graph up to three functions on a Graphics 7 screen, with scaling and a grid. When the graphs have been drawn, it will also highlight any one of them at a keypress.

To use Multi-Graph, merely modify lines 40-90 for each different graph desired. The values of XSCAL and YSCAL are the X-coordinates of the sides of the screen and the Y-coordinates of the top and bottom. HMINT and VMINT are the intervals between the horizontal and vertical marks which make up the grid, in the scaled coordinates. Thus, if your XSCAL is 3 and you set HMINT to 1, there will be three marks on the X-axis on either side of the Y-axis, evenly spaced between the Y-axis and the edge of the screen. Finally, F1, F2, and F3 are the three functions you want graphed, in terms of the variable X. Note that since these lines are executed each time a point is plotted, you can write anything in here you wish, even a reference to a real-time clock if you so desire.

After inserting your parameters, run the program, and it will graph them in three different colors on the screen. After they have been drawn, the program will enter what I call its highlight mode. At this point, touching any of the number keys 1 to 3 will highlight functions 1 through 3 respectively, and all the other graphs will be dimmed. Touch 4 to brighten all of the graphs; press RETURN to end the program. Note that since the grid is drawn with color 1, it will be bright when function 1 is highlighted and dim when function 2 or 3 is being highlighted.

If you wish any of the grid marks or functions not to be displayed, merely set them equal to NULL. If any of the functions are not displayed, pressing that function's key in highlight mode will merely dim all of the other graphs.

Two usage notes: first, all the trigonometric functions should be done in radians, and I have already defined the variable PI. Second, when showing a "slide show" of graphs, it is easiest to list lines 40-90 to files for each graph, and then ENTER those lines for each graph.

CLASSIFIED

FOR SALE (only because I need to be compatible at home with the IBM PC in the office!):

o Atari 800 (June 1981) with 48K, BASIC, GTIA, and FASTCHIP; Atari 400 Program Recorder and Educational cartridge; Atari 850 Interface; Atari 810 Disk Drive; All for \$995.00.

o Software:

Microsoft BASIC	\$60
Assembler Editor	\$40
LJK Letter Perfect (2.0)	\$80
Complete Valforth	\$125
Visicalc	\$175

o Educational: cassette courses on electricity, economics, world history, principles of accounting, programming 2, 3; \$15 each.

o Large package of utilities and games: Deadline, Wizard & Princess, various Adventures Int'l, Choplifter, K-razy Shootout, Paint, Tricky Tutorials 1-7, Video Easel, Caverns of Mars, Eastern Front, PacMan, Banner Generator, etc., etc., at a good price to be determined. Also available: numerous books on Atari.

Gretchen Kolsrud, (202) 226-2090 (work); (703)683-4388 (home).

MORE CLASSIFIED

FOR SALE: 16K Memory Board, \$30. Herb Talkin, (202) 232-6448, anytime.

FOR SALE: PAINT - Graphics Editor software with book, \$25.00;

CENTRONICS 739 printer with graphics, Atari interface cable, screen dump software, and extra ribbons. 100% compatible with Atari Word Processor, A-1 condition, \$300.

Call 703-987-8054, or see Tim Kilby at the Novatari meeting.

ANALOG MAGAZINE UPDATE

Art Corte of the DC Group reports the following: I called Mike Des Chenes of ANALOG magazine today about a group subscription and the rules on selling disk copies of ANALOG programs. He told me that the group rate had been increased to \$12 in line with the regular price increase to \$14. He added that he has no problem with the group selling duplicate disks of their programs to club members who subscribe to ANALOG independently of the club. I will be organizing a group subscription to ANALOG at the May meeting of the DC Group.

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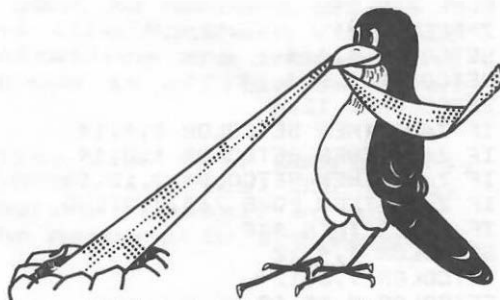
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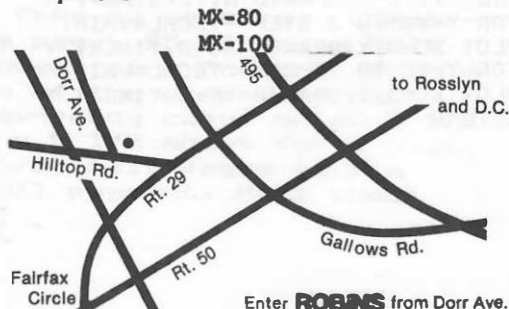
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PRODUCT UPDATE

ATARI HOME COMPUTER SYSTEM



ATARI® BASIC Reference Manual Update

This product update contains a number of corrections and additions to the *ATARI BASIC Reference Manual*.

Page 1. This definition is missing from the **TERMINOLOGY** list:

Page 6. This information pertains to the **ARITHMETIC OPERATORS** subtraction and exponentiation:

Page 7. This Note regards the use of the **LOGICAL OPERATORS**:

Page 13. This Note is in reference to **SCREEN EDITING**:

Page 20. This Note regards **ON/GOSUB** statements:

Page 22. Further information on **RESTORE (RES.)**:

Page 25. Some additional information on using the **INPUT (I.)** statement:

Floating Point Number: A number containing an integer part, a decimal point, and a fractional part. The total number of significant digits in a floating point number, excluding the exponent, may be either nine or ten. This depends on whether the exponent is an even or odd multiple of 10.

Note: Avoid negating zero, as this will produce an invalid number. For example, if you type

```
PRINT -0
the result will be
-0E- <8
```

Note: Since the algorithm used to generate exponents (^) is only an approximation, you cannot obtain integer results with it—for example, $2^2 = 3.99999996$. To correct this, use the following technique:

```
X = 2 ^ 2
PRINT INT (X + .5)
4
```

Note: Avoid using the statement **PRINT A=NOT B**, as the results are not predictable. Essentially, any **PRINT** statement with a **NOT** operator will be unpredictable.

Note: Large amounts of editing may lock up the system. It's recommended that programs under development be stored to cassette or diskette periodically (every 30 or 40 edits) with the **SAVE** or **CSAVE** command.

Note: If an **ON/GOSUB** expression evaluates to a number greater than the number of subroutine entries, then a **POP** statement will be necessary to clear the stack (see **POP** command, Section 4).

The **RESTORE** statement will not generate an error if the line number referenced does not exist. Instead it will **RESTORE** to the next larger line number in the program. Care should be taken to update **RESTORE** statements when renumbering a **BASIC** program.

When executing on **INPUT** from the screen, avoid moving the cursor away from and then back to the same line; otherwise, the wrong data may be input. Specifically, the **INPUT** prompt will be included in the **INPUT** string.

If a string of 128-255 characters is **INPUT**, then RAM locations 1536-1664 will be overwritten. This area is normally reserved for storage of programs or data. (See the *ATARI Tech Reference Notes*.)

To **INPUT** strings of more than 127 characters, use the **GET** command and store the values into a string (see Section 5, **OPEN/CLOSE** and **PUT/GET** commands).

Note: The maximum number of characters that can be **INPUT** from the screen is 120. The maximum for other devices is 255.

Note: Make sure that every **INPUT** statement has a variable after it; otherwise, unpredictable results may occur.



Page 26. This regards the use of the **LOAD (LO.)** command:

This Note should follow the **LPRINT (LP.)** command description:

Page 27. This information pertains to the file-spec definition:

Page 28. This is an addition to the **POINT (P.)** section:

In the last paragraph under **PRINT (PR. or ?)**, the first sentence should read:

The following sentence should conclude the final paragraph on **PRINT (PR. or ?)**:

This note should then conclude this section on **PRINT (PR. or ?)**:

This Note regards the **PUT (PU.)/GET (GE.)** section:

Page 30. Here is a corrected version of the table—note in particular the correction on cmdno 32:

Note: If a program is loaded that is too large for the available memory space, it may give unpredictable results without an error message.

Note: An **LPRINT** command with a semicolon at the end will cause the following **LPRINT** statement to print on the next 40-column tab. A 40-column printer will move to the next line in such a case. To use the semicolon effectively, use the **OPEN** statement for the printer, then write to the printer with a **PRINT** statement (see **OPEN/CLOSE** and **PRINT** commands, Section 5).

Note: Be sure to include the closing quotation marks on a filespec parameter, especially when putting multiple statements on one line. For example,

```
OPEN #1, 4, 0, "D:TEST":STOP
```

will work, but

```
OPEN #1, 4, 0, "D:TEST:STOP
```

will not function correctly.

Note: To update a file, you must open it with a 12 in oexp1.

A comma tabs every 10 spaces.

However, if the lost character to be printed (as in a string with quotation marks) is a **CTRL R** or **CTRL U**, then the next **PRINT** will begin at the end of the current line.

Note: In rare circumstances data printed to a diskette may have part of the **BASIC** program embedded in it. If this occurs, retry the operation.

Note: In certain circumstances the **GET** function may modify other variables within the program. To avoid this, **PRINT** any number to the screen between each **GET**.

cmdno	OPERATION	EXAMPLE
3	OPEN	Same as BASIC OPEN
12	CLOSE	Same as BASIC CLOSE
13	STATUS REQUEST	Same as BASIC STATUS
17	DRAW LINE	Same as BASIC DRAWTO
18	FILL	See Section 9
32	RENAME	XIO 32,#1,0,0,"D:TEMP,CAROL"
33	DELETE	XIO 33,#1,0,0,"D:TEMP.BAS"
35	LOCK FILE	XIO 35,#1,0,0,"D:TEMP.BAS"
36	UNLOCK FILE	XIO 36,#1,0,0,"D:TEMP.BAS"
37	POINT	XIO 37,#1,A,B
38	NOTE	XIO 38,#1,X,Y
254	FORMAT	XIO 254,#1,0,0,"D2:"



Page 33. The last sentence in the paragraph about the **CLOG** function should read:

Page 34. The last sentence in the paragraph about the **LOG** function should read:

Page 38. The last line in the first paragraph should read:

Page 39. The first sentence should read:

In the second paragraph, the last line should read:

This is additional information on the **VAL** function:

This information pertains to **String Concatenation**:

In **Figure 7-6**, the correct result of the program on the left is:

Page 42. Some additional information on using the **DIM (DI.)** statement:

Page 43. This is an additional Note for the **DIM (DI.)** section:

Additional information on using the **CLR** command:

CLOG(0) through **CLOG(1)** are inaccurate and should not be used.

LOG(0) through **LOG(1)** are inaccurate and should not be used.

was stored there previously.

Upon execution, the screen displays **THE SQUARE ROOT OF 10000 IS 100.**

number 1000000000.

Only the numeric field will be translated, while the text will be ignored. For example:

`VAL("5SUM")=5`

Note: BASIC cannot move strings of 256-character multiples correctly. String lengths should be checked; if any string contains a multiple of 256 characters, add or subtract one character from the amount to be moved.

BCD#

Make sure that the **DIM** statement does not contain a space between the string or array name and the left parenthesis of the dimensioned amount; otherwise, the following will happen—

`DIM L (10)` becomes `DIM LI 0)`

—and this variable can no longer be referenced.

Note: The command **COM** is identical to **DIM** and may be used in its place.

Note: Due to a discrepancy in boundary checking, arrays of up to 32766 by 32766 in size can be dimensioned. The programmer should size the array ahead of time to ensure that there is no "virtual" storage space.

The second sentence in the last paragraph, beginning "It also clears ...," should be deleted.

The **CLR** command will not initialize the values in strings and arrays.

Page 45. Here is a corrected version of TABLE 9.1:

TABLE 9.1—TABLE OF MODES AND SCREEN FORMATS

Gr. Mode	Mode Type	Horiz. (Columns)	SCREEN FORMAT		Number Of Color Registers	Split Screen	RAM Required (Bytes) Full Screen
			Vert. (Rows) Split Screen	Vert. (Rows) Full Screen			
0	TEXT	40	—	24	1½	—	992
1	TEXT	20	20	24	5	674	672
2	TEXT	20	10	12	5	424	420
3	GRAPHICS	40	20	24	4	434	432
4	GRAPHICS	80	40	48	2	694	696
5	GRAPHICS	80	40	48	4	1174	1176
6	GRAPHICS	160	80	96	2	2174	2184
7	GRAPHICS	160	80	96	4	4190	4200
8	GRAPHICS	320	160	192	1½	8112	8138

Page 49. The last sentence under PLOT (PL.) should read:

"The range of points begins at 0 and extends...."

Page 50.

In TABLE 9.3, the color PURPLE should be inserted after PINK in the first column, and the number 5 should be inserted after 4 in the second column.

Page 51. The sentence directly under TABLE 9.4 should read:

"DEFAULT" occurs if no SETCOLOR statement is used.

Page 53. Here is a corrected version of TABLE 9.5:

MODE, SETCOLOR, COLOR TABLE

Default Colors	Mode or Condition	SETCOLOR (aexp1) Color Register No.	Color (aexp)	DESCRIPTION AND COMMENTS
LIGHT BLUE	Mode 0 and all text windows	0	Color data actually determines character to be printed.	—
DARK BLUE		1		Character luminance (some color as background)
BLACK		2		Background
		3		—
		4		Border
ORANGE	Modes 1 and 2 (text modes)	0	Color data actually determines character to be printed.	Character
LIGHT GREEN		1		Character
DARK BLUE		2		Character
RED		3		Character
BLACK		4		Background, border
ORANGE	Modes 3, 5, and 7 (four-color modes)	0	1	Graphics point
LIGHT GREEN		1	2	Graphics point
DARK BLUE		2	3	Graphics point
BLACK		—	—	—
		4	0	Graphics point (background default), border
ORANGE	Modes 4 and 6 (two-color modes)	0	1	Graphics point
BLACK		—	—	—
		—	—	—
		4	0	Graphics point (background default), border
LIGHT BLUE	Mode 8 (1 color, 2 luminances)	—	—	—
DARK BLUE		1	1	Graphics point luminance (some color as background)
		2	0	Graphics point (background default)
		—	—	—
BLACK		4	—	Border



Page 54. In *Figure 9-4*, line 80 should read:

Page 55. This information pertains to **TABLE 9.6:**

Page 56. Here is a corrected version of **TABLE 9.7:**

Page 58. The last paragraph should read as follows:

In **TABLE 10.1:**

Page 63. The last line in item 9 should read:

Page 67. In *Figure 11-2*, line 0260 under Data should be:

Page E-1.

Page H-7. Line 160 in the program should read:

Page H-8. Line 50 in the program should read:

Page 117.

Page 118.

Page 119.

80 XIO 18, #6, 12, 0, "S:"

In Column 1, # 14, a period, not a bar, shows on the screen.

In Column 3, #'s 92-95 should show a superscripted circled 1 next to their characters

TABLE 9.7—CHARACTER/COLOR ASSIGNMENT

		Column 1 Conversion	Column 2 Conversion	Column 3 Conversion	Column 4 Conversion
MODE 0	² SETCOLOR 2	#+32	#+32	#-64	NONE
		POKE 756,224		POKE 756,226	
MODE 1	SETCOLOR 0	#+32	#+32	#-32	#-32
OR	SETCOLOR 1	NONE	#+64	#-64	NONE
MODE 2	SETCOLOR 2	#+160	#+160	#+96	#-96
	SETCOLOR 3	#+128	#+192	#+64	#+128

² Luminance controlled by SETCOLOR 1, 0, LUM.

Note that the DATA statement in line 90 ends with 256, which is outside of the designated range. The 256 is.....

The PITCH VALUE of 193 should have a musical note of "E," not "D."

precedence will save a few bytes.

#2

The right parentheses are missing after the word "CONSTANT" in Atari Functions of Inverse Cosine, Inverse Secant, and Inverse Cosecant.

160 IF K=125 OR K=155 THEN 180

50 PLOT 0,0:DRAWTO 159, DR

Following COM, "{(see DIM)" should be deleted and replaced with "A-1."

Under "Input/Output Devices," Line Printer should be followed by "{(P:)," not "{(L:)." "

"NOTE, 26" is missing from the listing.

* * * KOMPUTER KOLLEGE * * *

Memory Management
by Prof. Wilhelm Nibbleskipper

Having just returned from the International Conference on Random Numbers, I am dismayed to find a plethora of confusion over computer memory management. My distinguished colleague, Hans Rasterblinken, having just published a paper on this very topic, has generously agreed to allow me to relate his findings to you.

Fortunate are we that each memory location in the Atari system is sequentially numbered. Were it not so, it would be justifiable cause for various anomalies of decorum. Eight-bit microprocessors have 65536 memory addresses, some in the RAM boards, some in the ROM operating system board, and some in various ROM chips known as hardware registers. A concise memory map, or diagram of the arrangement of memory, can be found in the Atari Reference Manual, page D-1.

Programmers will gradually learn the locations of all the important memory addresses: 77, 195, 1536, 53279, 54286, etc. Some frequently used addresses are listed in Appendix I in the reference manual. Other manuals are available that list virtually all locations and the function of each. Mapping The Atari, from COMPUTE! Books is one of the best.

Some RAM addresses are reserved by the operating system for hardware functions. Appropriately they are called hardware registers and some have companion "shadow" registers. These registers have specific control over screen displays, sound, input/output, and the like. Still more RAM is reserved by the operating system and the BASIC cartridge for their own use. The remaining RAM, used for whatever purpose by your program, is called "free RAM."

The major portion of free RAM is located between addresses 1792 and 49152. When the BASIC cartridge is inserted, the top 8192 addresses are reserved for that cartridge. A second cartridge gobbles up another 8K if present in the Atari 800. If DOS is loaded from a disk drive, 9087 addresses are reserved for it. That leaves a section of memory between locations 10880 and 40960 for our programs to reside. All 30080 bytes are available if 48K of RAM is installed; less if less RAM is available. Only after the computer reserves all the RAM space it needs for DOS, BASIC, and some operating system addresses, does it yield the remaining memory for program use. Just as the tax collector takes his cut first, the computer takes its share of RAM before letting the programmer at the remaining portion.

Next class I shall tell where to find pockets of extra free RAM and how to reserve blocks of memory for your own special uses.

- CLASS DISMISSED -

THE ARMUDIC PASSWORD

BY John Lauer

The software that drives the Armudic Bulletin Board, as designed by Frank Huband, incorporates a feature that assigns an individual member number and associated 3-letter password to give users "club"-level access to Armudic. At the present time, every member of the D.C. Users Group and Novatari Users Group has been assigned a member number and a discrete 3-letter password. Your individual password can be found at the bottom of this page. Please retain this information, as this will allow you access to Armudic.

For those members that do not have a modem: The most inexpensive direct connect modem is the Signalman II by Anchor Automation. It retails at \$78.00 and will open up a wealth of information to you. By utilizing Armudic, you can receive public domain software; you can leave messages for other members (receive messages also), or review the WANT-ADS. You can also communicate with other computer users or with any of the commercial computer services. There are other areas of information in Armudic that will expand your ability to use the ATARI 1200/800/400. You can obtain a better description on "How to use your password and member number" by exercising option 'P' of the Armudic Menu. In a nutshell, when logging on to Armudic, you'll be asked "What is your member # and/or name (3-20 letters):". Enter your Member Number (be sure to include the "#" sign), then a dash "-", then your name (Ex: #5041-ANDY BRANDON). That's all there is to it.

Passwords are issued to all club members and representatives of established computer users groups.

[Editor's note: If you haven't used Armudic before, and would like to begin, here's how you do it. Be sure your computer is loaded with some sort of telecommunications software--the Atari Telelink cartridge, or one of the disk-based programs such as Jonesterm (available in the club program library). Before turning on your computer, turn on your 850 interface. When your computer is turned on, the 850 will load a program into it called an RS-232 handler, which sets your computer up to communicate through the modem. The signal that the handler has been loaded is a high-pitched toot about 1 second long from your TV speaker, which sounds after the other sounds of programs loading from the disk, etc.

Now pick up your phone and dial 276-8342 (A-R-M-U-D-I-C, if you look at the letters on the phone associated with those numbers). If the line isn't busy (a lot of the time it is, so be warned that you'll probably have to try several times) you'll be answered by a piercingly high whistle. Switch your modem to its data communication state or, if you have an acoustic modem, set the phone in the cups (making sure the cord is on the end it's supposed to be). From this point on, if everything is working right, Armudic will take over and tell you what to do. Useful jiggles if things don't seem to be working as they should are RETURN and CTRL-C.]

